

ABSTRACT

An ion trap-based system for chemical analysis includes an ion trap array. The ion trap array includes a plurality of ion traps arranged in a 2-dimensional array for initially confining ions. Each of the ion traps comprise a central electrode having an aperture, a first and second insulator each having an aperture sandwiching the central electrode, and first and second end cap electrodes each having an aperture sandwiching the first and second insulator. A structure for simultaneously directing a plurality of different species of ions out from the ion traps is provided. A spectrometer including a detector receives and identifies the ions. The trap array can be used with spectrometers including time-of-flight mass spectrometers and ion mobility spectrometers.